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BALANCE IMPROVING EXERCISE POOL FOR INTELLECTUALLY AND DEVELOPMENTALLY DISABLED

Thesis

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THESIS ABSTRACT

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This thesis is a product development based on theoretical knowledge. The purpose of this thesis was to produce a booklet containing balance exercises for the commissioner, the Joint Authority of Kainuu Region / services for the disabled. Main aims of the commissioner were to improve the services for people with special needs and enhance their integration into normal life. For individuals with an intellectual and developmental disability maintaining balance is often a major problem. Improved psychomotor balance skills help intellectually and developmentally disabled persons manage better in everyday situations. First, balance improving exercises were planned, which was followed by a testing phase to ensure a high quality product. Only then the exercises were completed to their final form.

The booklet, as the main product, contains descriptions of balance improving exercises. The users of the booklet are supervisors of groups with intellectual and developmentally disabled. To design an accessible product, the exercises are thematically grouped into musical exercises, ball sports, outdoor activities and indoor adventure activities. Exercises are easy and do not, therefore require complicated and time-consuming preparation from the instructors. The use of different sports awakes the interest of an extensive audience. The secondary product is a follow-up document, in which participants can review their skill development and instructors get feedback of how successful and enjoyable a certain lesson was.

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OPINNÄYTETYÖ
TIIVISTELMÄ

Koulu Kajaanin ammattikorkeakoulu	Koulutusohjelma Liikunnan- ja vapaa-ajan koulutusohjelma
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Opinnäytetyöni on teoriaan perustuva tuote. Tavoitteena oli tuottaa tasapainoa kehittävä harjoitusohjelma Kainuun maakunta-kuntayhtymän Vammaispalvelulle. Vammaispalvelun päätavoitteina oli saada paremmat palvelut ihmiselle, joilla on erityistarpeita, ja tavoitteena oli myös parantaa heidän integraatiotaan normaaliin elämään. Kehitysvammaisille tasapainossa pysyminen on usein keskeinen ongelma. Kehitysvammaisten tasapainotaitojen kehittyminen varmistaa suoriutumisen arkisista askareista.

Tuotekehitys tapahtui kolmessa vaiheessa. Ensin suunnittelin kaikki harjoitusohjelmat, sen jälkeen oli testausvaihe, jolla varmistin oppaan korkean laadun. Vasta sitten oppaan sisältö sai lopullisen muotonsa.

Päätuotteena on tasapainoa kehittävä harjoitusohjelma. Tämän oppaan tasapaino-ohjelmat sopivat ohjeiksi kehitysvammaisryhmien ohjaajille. Opas on jaettu neljään havainnolliseen osaan: musiikkiliikuntaan, palloiluun, luontoliikuntaan ja sisäseikkailuun. Harjoitukset ovat helppoja, mikä helpottaa ohjaajien valmistautumista. Erilaisten urheilulajien elementit lisäävät erilaisten käyttäjien mielenkiintoa. Arviointilomake on hyödyksi sekä ohjaajalle että ohjattavalle. Sillä voidaan seurata kehitysvammaisen taitojen kehittymistä ja samalla ohjaaja saa palautetta ohjelmansa innostavuudesta.

Kieli	Englanti
Asiasanat	Tuotekehitys, tasapaino harjoitukset, kehitysvammaiset
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PREFACE

Diversity Management is a concept from the economy life, but also discussed in the context of disability. The main goals of Diversity Management are toleration of diversity, to avoid discrimination and to get a productive community, where everyone has an own place. (Niehoff 2009, 186-189) Besides working life also spare time arrangements are important. When I started working on my thesis my mission was to offer disabled outdoor experiences. During the working process ideas changed and the outcome of my product development is a collection of various exercises in different environments. The idea is to offer a booklet that serves instructors and participants with different backgrounds and interests. The next step would be a more specific program to guarantee physical development of all participants.

My own working experience with people having a diagnosis of intellectual or developmental disease was positive. It conveys a new point of view into my life, because things that are obviously for normally developed people can be an obstacle for others. New methods and perspectives have to be developed to offer services for them. But the importance of these special services is great, because they expedite inclusion.

Thanks to Peiponpesä in Kemi and Mäntymetsä in Keminmaa for participating in my programs. Also a special thanks to Maarit Hast, a sports instructor in Kemi, and her constructive feedback that helped me to develop the balance program. Furthermore I say thanks to my family, who supported my whenever possible.

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ABBREVIATIONS

ATP	Adenosine Triphosphate
CNS	Central nervous system
CP	Cerebral Palsy
IDD	Intellectual and developmental disability
IQ	Intelligence quotient
WHO	World health organisation

1 INTRODUCTION

From researches can be concluded that five to eight percent of the total population are affected by disorders of the central nervous system that appeared during birth or early childhood (Kaski, Manninen & Pihko 2009, 15). Among them are also as famous people as Albert Einstein, a physicist and mathematician, and Walt Disney, being famous for the comics he created (Hill country disabled group, 2012).

These are only two examples of personalities, who had changed or impacted our society in a positive way, even they are not considered as normal; unnoticed the impact of all the disabled people that we do not know anything about. Nevertheless, there are very negative examples of how disabled have been treated during the past 100 years. Sterilization during the Third Reich or hiding disabled people in a separate room without providing the possibility to take part in normal life, are only examples of common treatment in earlier times. Fortunately political systems have changed and integration of disabled into normal life is a political aspiration (Committee on the Rehabilitation and Integration of People with disabilities 2003, 6). Though, many things go into the right direction, there are still many improvements to be done.

The purpose of this thesis is to develop a booklet containing balance exercises for Services for the disabled under the Joint Authority of Kainuu Region. The commissioner's target is to increase the number of services for people with special needs in Kainuu. Additionally, the organization seeks for improved integration. On national level the main goal is to secure and improve special services to moderate costs. The target for the booklet is the distribution among supervisors of IDD groups.

An improvement of the psychomotor ability to hold balance is of importance, because an increase in balancing skills guarantees the participants a better management of everyday situations (Kaski et al. 2009, 198-199). Therefore, the creation of a balance exercise booklet is an approach on the way to an enhanced integration and a more independent life style. One side effect can be the discovery of sports as a new hobby by some participants. The author of the thesis gains knowledge in working with people having special needs; especially in instructing intellectual and developmental disabled. So far the focus of the author was on organisational details, but the direct contact to disabled is missing. Another objective is to gain experience in developing a product. Employees and students of Kajaani School of Applied

Science profit from the awareness they get and from networking with institutions for people with special needs.

2 INTELLECTUALLY AND DEVELOPMENTALLY DISABLED

The meaning of disability includes an abnormality in one's anatomy, physiological impairments and obstacles in participating in normal life situations (Kaski et al. 2009, 15). IDD, in special, is defined by the American Association of Intellectual and Developmental Disabilities (2011) to be a state of a person with reduced cognitive abilities from the early childhood on; compared to dementia, which starts during adulthood. The disability can be recognized by a third party in everyday skills and social interactions, because there are deficits in the adaptive skills like self-care or communication. Per definition the status requires an intelligence quotient between 70 and 75. (Kehitysvammaliitto 1995, 34.)

A good evaluation of IDD considers cultural and individual circumstances to get a clear picture. Benchmark for the assessment of possible skill limitations is the typical behaviour of a certain age group. But IDD does not exclude the evolvement of special skills. If IDD is treated professionally, the quality of life for the person concerned increases.
However, IDD is no disease though it can go along with diseases. The way people with IDD act and react is closely connected to the intellectual limitation their condition goes along with. It also has to make clear that IDD is the result of conditions like the Down syndrome. This does not mean that IDD is the same than the Down syndrome. (Kehitysvammaliitto 1995, 19.)

2.1 Classification of the IDD

To get a picture of the degree of IDD, standardized psychological tests can be done. Another way is a professional assessment. Then the grade of intelligence is indicated as intelligence quotient (IQ), which is the quotient of intelligence age and normal age, multiplied by 100. For a normal developed person the intelligence age is the same than the actual age. It is generally agreed on an IQ below 70 being a sign for an IDD. Table 1 illustrates that a further definition, made by the WHO in 2010, classifies the stage of disability and IQs as mild, when the IQ ranges between the values 50-69. This mild state correlates with an intelligence age of 9-11. A moderate stage is classified by an IQ of 35-49, and an intelligence age of 6-8. The IQ for the severe stage ranges between 20 and 34, with the intelligence age between 3-5

years. A profound stage exists with the IQ being below 20, and an intelligence age of maximal 2 years. In our days, however, the values are not regarded as being absolute, but the whole life circumstances come into consideration when classifying the disease's stage (Mälkiä & Rintala 2002, 33-34).

Table 1: WHO classification of disability stages

Grade	**IQ**	**Intelligence age**
mild	50-69	9-11
moderate	35-49	6-8
severe	20-34	3-5
profound	below 20	0-2

It also cannot be excluded that the status of IDD never changes within time. It is possible that the situation improves during adulthood due to, for example, rehabilitation (Kaski et al. 2009, 19).

Additionally, an individual with diagnosed IDD can have multiple disorders; epilepsy is one example for it. It is also a known phenomenon of IDD that a person, with the symptoms of the disability, can react differently depending on the situation. This means that the behaviour is like for a normally developed individual in one situation, whereas another circumstance provokes a behaviour indicating developmental problems. (Kaski et al. 2009, 19.)

2.2 Reasons for the Disability

There are various reasons causing intellectual and developmental disabilities. According to Kaski et al. (2009, 19), 30 % of IDD base on genetic factors and in one fourth of the cases the reasons are unknown. Prenatal reasons like infection, damages of the central nervous system (CNS) during the delivery process and infections cause 12 % of the disorders. External prenatal factors like infection, medication, poison, nutritional problems are responsible for 11 % of the cases. The trigger for 8 % of all IDD cases appears postnatal; like infections

or psycho-social aspects. For another 8 % of all instances, the reason appears already during the foetal stadium. No announcement is made for the missing 6 %. (Table 2)

Table 2: Finnish classification of causes for IDD

Reason	Percentage
genetic reasons	30
unknown reasons	25
prenatal	12
external prenatal	11
postnatal	8
during stage of foetus	8
no announcements	6

2.3 Normal Development of the Brain and Disorders

The development of the CNS usually starts 18 days after impregnation (Kaski et al. 2009, 81). As well the brain as the spinal cord, develop from an "infolding of the outer embryonic layer."(Tamarkin 2011) First a tube is formed, followed by the development of three brain chambers: the forebrain, midbrain and hindbrain. In the next step, two of the three chambers, split into half resulting in five knots - the brain vesicle. At this stage all vesicles exist and the brain grows only bigger.

Since the development of the brain is a difficult process, there are various possibilities for mistakes to appear. If the disorder happens during the first four months of pregnancy, the risk of severe consequences is high. But also for further developed foetuses, disorders can affect on the development of the CNS. The abnormality can appear not only in the brain, but also in organs, for example, the smelling sense. Or it affects multiple sections and then the dysfunction arises in many organs. (Kaski et al. 2009, 81.)

2.4 Additional Conditions Affecting Physical Activity

The health condition of a person with IDD has a great influence on the possibility to take part in physical activity. By its best, an individual with IDD is an excellent athlete, who competes on high level. Then the good health status has a positive impact on the ability of function. The other extreme is an individual, being not able to move at all without help. Thus, the range of health condition is wide. (Kehitysvammaliitto 1995, 74) Autio, Aittokallio and Turunen (1987) mention cerebral palsy (CP), communication difficulties, decreased sensual perception, epilepsy and psychological problems as the most typical additional conditions. Out of this group CP affects most to physical performance.

Cerebral palsy is caused by abnormalities in the brain and affects motor functions. The location and the grade of the physical impairment depend on the exact location of the disorder in the brain. For individuals with CP the possibility of having difficulties with balance and coordination is relatively high. (Cerebral palsy organization, 2011.) Muscular diseases, like Duchenne muscular dystrophy, are another condition that has to be concerned, when talking about physical exercising. A reduction in muscle strength that begins in the childhood is the most significant symptom. In an advanced stage of the disease, muscle atrophy occurs and the affected person depends on a wheelchair. (Muscular dystrophy organisation, 2012.) People with IDD can also have orthopedically problems, which are caused by low muscle strength or anatomic malformations. The most common disorders are limb flexion, joint inflammation, apposition of lower limbs, or an abnormally formed spine. (Kaski et al. 2009, 137-138.)

2.5 Integration

Integration of people with special needs has already a few decades lasting history on political level. The first international institutions that included disabled policy in their work were the WHO and the United Nation Commission for Social Development. Later, also the United Nation Human Rights Council was dealing with belongs of disabled. This transferred the point of view that was restricted to social and medical aspects, into a larger context. (Bundeszentrale für politische Bildung 2003.)

On national level there is a continuous debate about integration and separation respectively. On the one hand there is the aim to integrate everyone into normal school life, but on the other hand, many people with intellectual disabilities work as adults in special institutions. In Finland, for example, integration of special education into normal schools has been a central topic for the last 20 years (Kehitysvammaisten Tukiliitto ry). One central aspect of integration seems to be the skill to interact with the social environment (Rinnekoti Säätiö). In the lifespan of a person with IDD this means a decrease of integration with increasing age, because the integration of adults in normal working life is still a challenge.

3 MOTOR DEVELOPMENT

Motor development plays an, as important role for individuals with special needs, as it does for people without disabilities. Exercising helps to develop motor skills and social behaviour, to perceive the environment, and it helps to get new experiences. Thus, motor development provides a base for an independent life. The base for motor development is a movement. To perform movement sequence the performer has to be able to compare how a movement was planned and how the real outcome of the performance went.

3.1 Movement

Movement stands for an action, which is characterized by factors like velocity, precision and rhythm. Furthermore a movement is influenced by physiological, energetic and psychosocial processes. (Peters 2011, 1.) The motor system of humans initiates, implements and controls a movement. To initiate movement skeletal muscles have to contract. The instruction is sent by motor neurons of the nervous system. Each motor union controls one or more muscle cells depending on the preciseness of the motion. The power of a muscle contraction is regulated by the number of excited muscle cells. The simplest form of a motor control is the stretch reflex supervised by the spinal cord. To maintain an upright standing position, the stretch reflex acts on the lower extremities and the trunk to counteract the impact of gravity (postural motor system). (Hubert 2008, 18-19.)

The visual sense registers the optical stimuli and photoreceptors of the eye, transfer light stimuli into electrical impulses. Nerves transport the information to the central nervous system, where the impulses are interpreted. Then, the brain sends impulses to the muscles. (Atlas of Anatomy 2009, 181-182.) Another important sense is the ear that locates the organ of equilibrium. When a sound wave reaches the eardrum, the vibration of this membrane gets transported through the three auditory ossicles to the cochlea. The cochlea in the inner ear contains fine hairs, which receive auditory information. Nerves, then, conduct corresponding signals to the brain. The organ of equilibrium is also well protected in the inner ear. Three loops of bony material are arranged horizontal and vertical directed to register any change of the head position. In contrast to the visual and auditory sense, the stimuli accord-

ing balance are transferred by neurones to both the brain and the spinal cord. (Atlas of Anatomy 2009, 168-169.) The central nervous system interprets the information of the sensory systems and sends messages along motor neurons to the muscles. To gain complete control the brain or the spinal cord, receive signals from muscles, as well. Muscle spindles measure the stretch of a specific muscle and nerves, again, transmit their stimuli back to the brain or spinal cord. (Wilmore, Costill & Kenney 2008, 93-95.)

Energy is needed by the body to maintain basic body functions like staying warm. Sources of energy for humans are carbohydrates, proteins, fat and alcohol. An optimal distribution of nutritional intake is 55 % carbohydrates, 30 % lipids, 15 % proteins and no alcohol. The daily intake for an average person is 2000 kcal. Essentials for healthy eating habits are a variety of foods. Daily meals should contain fruits, vegetables, fish, whole grain and low-fat dairy products. Keeping moderate body weight is another essential guideline. A balance between food intake and energy expenditure ensure a stable body weight. Limitations include sodium, alcohol, high amounts of saturated fats, cholesterol and high sugar intake. (McArdle, Katch & Katch 2010, 88.) Food is the main source for energy production. Eating is followed by digestion, which splits food into smaller subunits that can be used during metabolism. Food is not directly the fuel for workout, but it is adenosine triphosphate (ATP). After ATP receives energy from food, it transfers the energy further to the muscles. Depending on duration of the physical activity three different energy systems are in use. The immediate energy system, using creatine, is responsible for the first 20 seconds of exercising. It is followed by the short term energy system that burns carbohydrates without use of oxygen. When the activity lasts more than 5 minutes the long term energy system supplies the performer with ATP by burning carbohydrates with presents of oxygen. (McArdle et al. 2010, 135/143/226.)

Psycho-socio processes are, besides energetic and physiological process, the last category influencing movement that is described in this thesis. Personality is a central factor when talking about psycho-social processes. Personality develops throughout lifetime, but crucial milestones are set during the childhood. Therefore social interactions have an influence on the personality and psyche of a certain person. In cases where life circumstances of a trainee are known, they should be considered also during sports instructions. There are three main points that have a positive psycho-socio influence on a participant. These are a positive attitude of the instructor, motivation and rewards. A motivated instructor is able to inspire trainees to do things they normally would not perform. This means also that the instructor

sees everyone as an individual with own weaknesses and strength. Motivation is not only necessary for the instructor, but for participants as well. Throughout motivation stimulation is given. Depending on the situation, an instructor has the possibility to motivate an individual or the entire group. The motivation medium can be a physical contact with a touch for example. Then it is possible to motivate verbally (nice job!) or per gesture and mimic (smile, clapping hands). Rewards can be considered as one form of motivation, too. The lesson or event stays longer in mind when participants can place, for example a prize, to their home. Another common strategy is: first compulsory exercises, then the voluntary part. (Autio 2010, 20-22.)

3.2 Motor Skill

To perform a desired sequence of movements one has to be able to compare how a movement was planned and how the real outcome of the performance went. This is possible, when the performer feels what own muscles are doing. The term for this procedure of a movement's quality is motor skill. The development of a motor skill requires practice and the ability to modify own actions. For advanced performers besides practice also experience plays a role in motor learning. The place that controls a physical performance is in the motor cortex, the region of the cerebral cortex that controls voluntary muscle groups. (Schmidt & Vristberg 2008, 4-11.) A motor performance, then again, depends on fluctuations of conditions the performer is in. These conditions can origin for example from the environment, or the state of the own body. (Schmidt & Vristberg 2008, 11.)

Motor skills are divided into gross and fine motor skills. Gross motor skills enable humans to perform coordinated and reactive movements. It is always an involvement of large muscle groups; in contrast of fine motor skills, which involve small muscle groups. Typical examples of gross motor activities are walking, running, jumping, throwing and maintaining balance. Fine motor skills organize small muscle movements, like they occur in the fingers, usually in coordination with eyes. The development of motor skills starts always with the head and motor skills of lower extremities are trained latest. Furthermore their development starts with gross motor movements, which are successively refined and more economic as training. (Autio 2010, 53.)

3.3 Motor Development of Able-bodied and IDDs

The delay in the development of motor skills can be noticed in both, basic motor skills and perception skills. Differences in motor development, between normal people and cognitive disabled, increase with age. (Kaski et al. 2009, 198-199) There can be also difficulties in understanding complex rules of team games. Nevertheless, musical exercises are popular among persons with IDD (Mälkiä et al. 2002, 34).

Children below school age should start to learn basic movement skills, which get refined at school age by participation in games. Adolescent developmentally disabled need more possibilities to exercise than younger ones, because of the slower improvement of physical abilities. It is, however, difficult to prognosticate the motor development of one individual at young age and to know how long it takes to achieve certain motor development milestones. One of the reasons for the delay in motor development is a reflex that appears later, or which disappearance is prolonged. A good example is the lack of the protection reflex during a fall. People with IDD cannot intercept the force of a fall with their hands, which results in a carful walking style to protect falls. (Holle 1981, 30-33.)
Body knowledge is a key component in learning motor skills. The position of extremities and the registration of movements and their range are central aspects of motor learning. A good way to get familiar with the own body is through touching and discussing about them; if necessary daily. (Kaski, Manninen & Pihko 2012, 182.)

In general children with IDD develop their motor skills later than normally developed children. The following text explains this phenomenon with the help of two examples; walking and griping. The start of walking exercises with a child who develops slower should happen at a time, when the child's motor development is ready for it. Otherwise there is the risk of tensing all muscles. Then muscle movements are unnatural and stiff. Other prerequisites for successful walking are the skill of holding balance and well enough developed muscles. Typically the following problems appear while walking. Legs are in a wide position, as a result of limitation in balance skill and the fear of falling. Another indicator for balance problems is a dragging gate; muscle weakness is a second factor causing dragging gait. Lower extremities are flexed continuously, which results in setting the whole sole of the foot on the ground. The lack of spine rotation causes a stalking gait. Typically are also genu valgus, a condition where knees point inwards when legs are straightened. Depending on the difficulties that

appear during walking attempts, specific gross motor training helps to develop a proper walking style. Motor development of hands happens later for children with IDD. The fine motor development requires the disappearance of the grasping reflex. This means that a child can drop something immediately off the hands. Another crucial factor for fine motor movements of the hands is the use of thumb and forefinger, instead of the palm grip only. Additional there must be the eye hand coordination and a right amount of force use. At the beginning of the hand's motor development there are also more body parts involved in a movement than a more experienced person would use. (Holle 1981, 60-69.)

3.4 Phases of Balance Development

The development of balance according to Sport New Zealand (2012) is divided into three phases. The initial phase is characterized by focusing on the supporting body part. Furthermore compensation movements are overstressed and the results vary from successful to unsuccessful. During the developing phase the state of balance is more stable. Free body parts are used to balance, the focus point moves away from the supporting body part. In dynamic balance can be achieved already high quality results. The consolidation phase is characterized by an application of balancing skills to the own sport. Dynamic movements are fluent and can contain various step series. The focus of the eyes is completely freed of the supporting body part. Static balance is achieved with both, the dominant and subdominant body side. Also counterbalance movements are performed confidently. The existence of right and left handed is an evidence for a temporary difference in development of both body halves. Experts do not recommend influencing this genetic process. To guarantee an optimal development of the nervous system and muscle work, the training of both body halves has to be balanced. For the initial learning process it is recommended to start with the stronger body half, but at an advanced stadium each body halves are trained equally. (Autio 2010, 54.)

4 BALANCE AND INSTRUCTION OF PEOPLE WITH IDD

The aim of the booklet, which is developed as a part of this thesis, is to improve balancing skills. A body is balanced, when the weight distribution on both sides of the body is equivalent (Oxford advanced learner's dictionary 2011). When the balanced stadium is reached, one's body is stabile. The method to enhance body balance is by instructing balance improving programs. The booklet contains central aspects of instructing IDDs.

4.1 Fundamental Movement Skills

Balancing is part of the fundamental movement skills that develop typically at an age of three to five. Besides balance also locomotor and manipulative skills belong to the group of fundamental movement skills. A balanced state is reached when the centre of gravity is above the supporting body part. Locomotion is the skill of moving from one to another place; using different styles. Manipulative skills are defined as the ability to manage objects by using a specific technique. Balance is further divided into static and dynamic. With the help of static balance one keeps position by using only small muscular corrections; for example standing on one leg. Dynamic balance regulates body position while motion. As everyday situations and sports require controlled motions, balance is a central skill. There are elementary physical principles behind the state of balance. First of all the centre of gravity is above the position supporting body part. The second principle states that the smaller the area of support the more difficult it is to keep balance. If parts of the body are extended off the line of gravity, another body part has to compensate this unbalance by a counter extension. The last principle points out that series of muscle contraction and relaxation correct the body position. (Sport New Zealand 2012.)

4.2 Balancing Skill of people with IDD

Discovery of the own body can be difficult for people with intellectual and development diseases. There is a correlation between own body's identification and motor skill learning. (Kaski et al. 2009, 199-200). Because the location of limbs and the movement's range are

unclear for intellectual and developmental disabled, there are often difficulties with balance. According to Chen and Woollacott (2007, 306) balance is a fundamental motor skill that is a key element in almost all motor moves. A subtype of postural control is the reactive balance control, which corrects posture after losing balance, for example when slipping. Consequently children who are suffered from weak posture control cannot develop higher of motor skills. Comparing students with learning difficulties, autisms and developmentally disabled with each other, the developmentally disabled showed the poorest results regarding to balance and motor abilities (Bodenstein-Jenke Regina 1980, 24).

4.3 Instructing

Social intercourse with intellectual and developmentally disabled follows the same principles than working with everyone else (Mälkiä et al. 2002, 34-35). Instructing physical activity depends more on the individual than on the medical background. Humanism and applied behaviour analysis provide the best quality of teaching for both disabled and normally developed. Both teaching methods take skill learning and behavioural management into consideration. The humanistic teaching style creates a positive environment for the learner. It results in an encouraging self-image. Success requires that important needs like eating, drinking, safety and social belonging are satisfied (Maslow's theory of self-actualization). The applied behaviour analysis has a special eye on the behaviour of a student. The instructor gives feedback on the behaviour side of the student. In that way the social ability of the learner develops. The instructor of physical activity has to see the learner, the task and the environment while working. (Winnick 2005, 119-123.) When using the list of teaching styles made by Mosston & Ashworth (2008, 156), the inclusion style is the most appropriate to use, because it takes individual skill differences into consideration. The same exercise can be performed on multiple levels, providing success for every learner.

Picture 1: Maslow's theory of self-actualization, modified by author

People with IDD have weaknesses in memorization, perception, intellectualization and processing information. In addition the self-assessment of IDDs differs from the evaluation of an outsider. Thus, people with IDD, in contrast to normal people, realize their environment differently and do not set up objectives that could be reached. For a successful instruction well-structured lesson plans are necessary. Typical lesson disturbing situations are hyperactivity, passivity, aggressions and disturbance. (Ikonen 1998, 101-103.) Approvals after an accomplishment correlate with motivation, which then has a positive influence on the endurance of the participants. Numerous training sessions, then again, allow the achievement of an automation state. But even motivation is no guarantor for the enthusiasm to learn. If the instructor recognizes an unmotivated individual, there are ways to include this person in the lesson. Option is the use of a proper teaching method, the allowance of the sense of achievement, or individual assistance. Individual differences have to be considered. The kinaesthetic group of learners learn by doing, whereas audio learners learn by listening. Visual learners, then again, are successful watchers. (Ikonen 1998, 286-288.)

It can be concluded that short, easily understandable instructions enable successful learning for IDDs. The best form of teaching is a demonstration of one movement in small steps.

The challenge for the instructor is to motivate intellectually disabled participants to take part in exercising and to make them feel self-confident. Non-appropriate behaviour of a participant is best to be ignored by the instructor as long as the situation remains safe. Good behaviour is nice to mention and to thank for. Group games are a good way to learn social behaviour. (Mälkiä et al 2002, 34-35.)

5 DEVELOPMENT OF A PRODUCT

The purpose of a functional thesis is a product development. The product should be connection between the theory learned at school and practice of working life. A functional thesis also connects a concrete product with a research report. (Vilkka & Airaksinen 2003, 9.) A project is defined to be a planned task with a certain goal. The implementation of a project requires a project organisation, a time frame and certain recourses. (Rissanen 2002, 14.)

5.1 Project Thesis

On the base of the above mentioned definitions it can be said that a functional thesis is similar to a project. At the beginning of every project, there is an idea and a vision for the future. If the vision is large and rich enough, it has a future. This means that the project at its initial phase thinks about financial, social, law, ecological aspects and techniques. (Rissanen 2002, 33-39.) Each project has its own life time starting with birth, childhood and adolescent phase. Interaction at this first time is great and situations sometimes chaotic. During adolescence, those who do not believe in the success of the project, drop out. The adulthood is characterized by routine of the involved members resulting in fast flow of work and fast decision making (learning). The following phase is the most crucial one. If the organisation team is not able to renew the project in direction to childhood and adulthood phase the project dies soon. (Rissanen 2002, 128)

Felicitous characteristics of the modern world are globalization, competition and high expectations of clients. As a result companies have to develop their array of products perennially. But the backgrounds of substantial changes are mostly difficulties in marketing and weaknesses in competition. It can be concluded that the way to success is innovation. Innovation is closely connected to time, place and environment, which means that there has to be more than only an idea. (Rissanen 2007, 143-152.) Product development is a process to get new products / services, or to improve existing supply. At the beginning of the developing process is a certain amount of ideas, with a majority of them dropping out when work progresses. Reasons for the rejection are, for example, of economic or practical nature. Receivers of

the product development are clients. The financial profit of the development is strongly related to the financial input during innovation phase. (Rissanen 2007, 263.)

5.2 Booklet Development

The primary aim of this thesis is to develop a booklet containing balance exercises for the Joint Authority services for the disabled. The idea behind this goal is an improvement of the psychomotor ability to hold balance, because this guarantees the participants a better management of everyday situations. The future users of the booklet are supervisors of IDD groups in Kainuu region. The secondary goal is the development of a following up document for the participants. Following up is practical, because participants can review their skill development and instructors get feedback of how successful and enjoyable a certain lesson was. The text of both, the booklet and the following up document, has to be clear for the target group (Vilkka et al. 2003, 51). This means that the booklet has to be written in the common language the commissioner uses. The following up document, is designed for the participants of the exercises, people having IDD. Thus, the messages have to be easy to understand and an overload of the document has to be avoided. Also the design of the product is important (Vilkka et al. 2003, 52). This includes the cover, format, paper quality and font. Some commissioners have their own opinion on the design. They want for example a certain format and their own logo appearing. One limiting factor is the financial recourse. The aim of this product development is to keep the costs as low as possible; by making compromises between quality and costs.

6 MARKETING

Kotler et al. (2008, 29) define marketing as "...satisfying customer needs." Thus, when talking about marketing there is a producer and a consumer. Between the company and the customer is a relationship, because the company creates and offers satisfaction, whereas the customer has a need and financial recourses.

The environment directly surrounding a company, like consumers and competitors, is among others affected by politics, demography, technology and economy (Kotler et al. 2008, 90). Viewed from a large perspective today's environment supports marketing of services to disabled, because the status of disabled changed significantly after the Second World War. Integration is a political and cultural issue. The financial situation of private households is stable enough to afford services for disabled. The fact that in the average one to two children are born in Europe increases the willingness of parents to optimally support a child with special needs.

A new product is in a majority of cases a modification of already existing products. It is also possible to bring an old successful product to the market again. In only a few cases the product is a new invention. (Pride & Ferrell 208, 326-329.) While searching for theoretical background for this thesis it was not possible to find a product that provides balance exercise for intellectual and developmentally disabled. At least, the offer for people with IDD in Kainuu is narrow.

The booklet with balance exercises can be first of all used by the Joint Authority services for the disabled, as the commissioner. But the segmentation group are all Finnish speaking supervisors, who want to instruct balance exercises. In addition the product can be interesting for other responsibilities working with intellectual and developmental disabled. These responsibilities can be disabled organisations like Suomen Vammaisurheilu- ja liikunta VAU ry, municipal sports offices, or municipal handicapped workers.

7 DEVELOPMENTAL TASK

The purpose of this thesis is the development of a booklet containing balance exercises for the Joint Authority services for the disabled in Kainuu to increase the number of services for people with special needs. As a secondary product there is a follow-up document. The Join Authority services for disabled aims are to secure services for people with special needs, which include increasing the number of services and integration of all people in Kainuu. On national level the main goal is to secure and to improve special services to moderate costs.

The developmental tasks of the thesis are:

- What balance improving exercises can be performed by intellectual and developmental disabled?
- What are subjects of every level able to do; where are the limits of their abilities?
- How many different versions of one movement are needed?
- How can the members of the pilot group be motivated?
- How are the booklet and the following up document developed?

8 REALISATION OF THESIS

At the beginning of every product development process there is an idea and the wish to transfer the idea into a product. Therefore a strategy is necessary. The product designing phase is the base for further decisions and actions. The designing phase is not only restricted to the product itself, but includes also marketing. Testing is a key element of the development process. The designer gets feedback from future customers. Only after feedback evaluation and final adjustments to the tested product, the first version can be launched. (Sipilä 1999, 37.)

8.1 Commissioner

The commissioner of this thesis is the Joint Authority of Kainuu Region / services for the disabled. This executive organ is elected for a four year cycle by democratic elections by the citizens of Kainuu. One field of activity of the Joint Authority is to concern about belongs of disabled in the region. (Kainuun Maakunta) The Joint Authority of Kainuu Region takes part in a national reformation of services for disabled. This projects runs between the years 2010 and 2012. The main purpose of this project is the adjustment of the services to present belongs. Furthermore, objectives are the design of new services, individual living, assistance, and advanced training of the professionals. (Vammaispalveluhanke)

8.2 Thesis Process

The idea to write a thesis for the Joint Authority of Kainuu Region / services for the disabled developed in autumn 2011. Already before the thesis topic idea matured there was an interest of the author to work with people having special needs. An indicator therefore is the development of two different outdoor programs as part of a Product Development and Adapted Physical Education courses. In contrast to the just mentioned courses the thesis topic includes the unique possibility to work with disabled. The reason why a product development process was in the focus of the author, is the own working history of 12 years. In

working life innovation and projects are common (Clark & Fujimoto 1991, 1) and a product development thesis is a nonrecurring chance to train this process offside employment.

The initial idea of the author of that thesis was the creation of outdoor activities for people with special needs, because of the already existing theoretical background information. This would have been one step for the author on the way to the mission of enabling outdoor experiences for everyone. According to the Witschaftslexikon (2012) a program like this can be defined to have depth in range, because all balance improving exercises occur outdoors. On the other hand there is an extent range of programs including balance improving exercises of different sports. During the development process the first idea turned out to be excessively specific for groups who do have only limited experience in physical activity. In addition, the success of an instruction depends on the personality of the involved (Autio 2007, 19). A continuously lasting instruction of a specific program requires interest in that topic from both, the instructor and the participants. If the program is specific the readiness to grip with it is higher than with a general program, containing known issues. Consequently the author decided to prepare a general program.

The first step of the thesis process was to find knowledge about the target group. On that base a rough plan concerning the content of the booklet was done. In order to limit the extent of the thesis it was necessary to focus on one part of motor skills. The author has chosen the gross motor skill, balance, to be the central theme of the thesis (Autio 2007, 49). The reason therefore is the central role balance plays in movement. Only the act to hold balance is problematic for IDDs, because they have difficulties with the control of movements and the realization of movement ranges (Bodenstein-Jenke Regina 1980, 24).

The exact target group are individuals with IDD, who live in supervised, shared flats in Kainuu region. The groups are supervised by social workers who are no experts in physical activities. As a result of this situation exercises are monotone and there is no chance for individuals to develop. The situation for disabled in Kainuu is even worse, because the region has no sports instructor responsible for adapted physical activities. In the municipal of Kemi, for example, the instructor for adapted physical activity is responsible for senior, IDD and multiple sclerosis groups. The idea of this thesis is to offer inhabitants of the supervised, shared flats more various and goal orientated physical activity program then they have at the moment. The long-term goal is an improvement in balance, combined with an increase of strength, reaction, coordination and endurance. Furthermore physical activity has a positive

impact on metabolism, elasticity of muscles and on joints, to name only major effects (Mälkiä 1993, 22-23). To sum up a further developed physical fitness increases well-being; including an increase in self-confidence, independence and mental health (Fox 1999, 411).

The project coordinator for the renewal of the disabled services in Kainuu, Nina Korkeala, informed supervisors of IDD groups in Kainuu about this thesis topic and organized a pilot group in Kajaani to work with. The plan was to develop the balance exercise program in spring 2012 to be ready for testing in summer, the only possibility for the author to be in Kajaani. In March 2012 it exposed that there is a possibility to test the balance improving program in Kemi, where the author completed the advanced practical training, being part of the sports instructor education. Thus, there have been minor changes to the original plan.

For practical reasons this was the best possible solution. First of all, Kemi offered a professional instructor for adapted physical education to cooperate with. The instructor for adapted physical activity, Maarit Hast, offered the chance to work with two IDD groups, whenever the groups were booked on the regular, weekly time schedule. Hast gave constructive feedback, which enabled a further development of the program. Another positive side was the location next to the author's home community, which saved time and money. The group, the author mainly worked with, was Peiponpesä in Kemi. Peiponpesä is a supervised working group for IDDs in Kemi. The entire group is spitted into a group with severe stage of IDD and those who can manage their life in parts by their own. The program was tested with the more independent group, because the program requires that participants are mobile; even a helping device is necessary. Nevertheless, the author benefited from experiences she got from throwing training conducted with individuals, who have a diagnosis of severe IDD grade. An example is the observation of consequences, which the presents of the grasping reflex, has on the independence of the affected person. The second group the author worked with was Mäntykeskus from Keminmaa. This group took part in adapted aqua activities once a month.

After tests were conducted the author worked on the design of the booklet. Decisions concerning size, use of colours and structure had to be made. Then the content of the program had to be more tangible. The greatest challenges were the transformation of 60 minutes long testing program into 45 minutes long program and a precise exercise description. This act was necessary, because Peiponpesä and Hast had decided in beforehand on 60 minutes duration for the instruction. The author of this thesis decided on 45 minute lessons to avoid fa-

tigue of the participants. The formulation of a precise exercise description was a challenge, because all exercises are familiar to the author. Moreover there is the possibility to illustrate during practical instructions. But in the case of this concrete thesis, understanding depends on written instructions. A limited amount of pictures was used to enlarge perspicuity, but one intention of this thesis was the production of a short guide in written form. To avoid misunderstandings the author used well-known exercise and arranged three pre-readers to give feedback. None of the pre-readers is physically active to a high intensity, but all of them tested the content of the booklet actively. As a result of this fact, the content of the booklet can be categorized as understandable and valid (Hirsjärvi, Remes & Sajavaara 2009, 231).

Another issue the author had to take into consideration was the heterogeneity of both pilot groups. Some individuals needed for example special devices for moving like rollators, whereas others motor system is developed well. Other special circumstances were visual impairment, spastic, or cocooning. The first idea, to provide two versions of every exercise, does not meet the specific needs of the individuals. A consideration of enormous individual variations would have consumed excessively more time for planning and space in the booklet. The clearness of the booklet would have been in risk to disappear. In conclusion the author transfers the solutions for this dilemma to the supervisors of the own group, because they have the experience what special needs one individual has.

Unlike the booklet the design of the follow-up document was a short process. In practice the most information provides a table (Hirsjärvi et al. 2009, 322). There has been the idea to colour a small part of the logo elephant every time one participated, but it was difficult to include the rate of popularity of one certain lesson. Because this document is for individuals with IDD, one criterion was comprehensibility. To meet this requirement, visual objects were used to clarify the printed text (Hirsjärvi et al. 2009, 328).

8.3 Content of Booklet

It was a goal of the author to offer a program containing elements of different sports. Hence, there is diversification and the majority of participants find enjoyable programs. This meets the need to satisfy a heterogenic group with various interests. The second reason why easy exercises are used is found in the instructors. If an instructor is not familiar in sports instruction the threshold to start is lower with easy workout. On the other hand the integra-

tion of sports, like indoor climbing, diversifies the exercise pool. The author assumes that a pool with basic exercises is considered as general knowledge for a sports instructor therefore there are no sources indicated in the program part of the booklet. The language use for thesis report is academic, but the language used in the concrete product has to be understandable for the reader (Hirsjärvi et al. 2009, 290). Because the commissioner is a Finnish organisation the content of the booklet was written in Finnish.

The structure of the booklet follows common rules. The content of the booklet is divided into an introduction that considers the importance of physical activity for individuals with IDD, followed by words about the use of the booklet. The following chapter contains 16 lessons with different topics. To get an overview easily the 16 topics are grouped into musical exercises, ball and precision games, outdoor activities and into indoor adventures. All exercises are chosen on the background to improve balance of the participants. But besides static and dynamic balance also mobility, ball handling, which requires eye-hand coordination, body control in different positions, reaction, rhythm, and endurance are trained. If an adult is moderately physically active for a minimum of 150 minutes a week, the performer benefits already (U.S. Department of Health and Human Services 2008, 7). The more activity variations are offered, the higher the chance to train a large range of skills.

Lessons with music are: group dance, aerobic, water exercises and chair exercises. Musical exercises improve the sense of rhythm, creative movement and body control of the participants (Mälkiä & Rintala 2002, 236). Participants concentrate on the beat of the music and try to keep the rhythm. Changes in the number of beats per minute increase the challenges for trainees. Especially group dance sets on the activity of the entire group. The medium water differs from medium air in a significant way. Water with its buoyancy helps upward movement, but resists movements downwards and is therefore suitable for people with IDD (Mälkiä & Rintala 2002, 338). Chair exercises are targeted for strength and mobility increase. Ball games develop the coordination of the visual sense muscular reaction (Mälkiä & Rintala 2002, 255-276). Throwing, catching, hitting, passing and kicking techniques develop with regular training. The ball sports used in the booklet are: soccer, basketball, badminton and boccia. The characteristic of outdoor activities are un-homogeny conditions. The surfaces possibly changes with every step, which demands careful choice of the track (Mälkiä & Rintala 2002, 381). In addition various conditions with countless combinations occur. These conditions are for example different terrains, lighting, temperature, or slopes. These circumstances make the outdoor environment in nature to an excellent balance training place (Mä-

lkiä & Rintala 2002, 378). Trainees are forced to react steadily to the uneven surface. Furthermore versatile landscapes offer versatile training conditions for coordination, strength or endurance. The booklet contains orienteering, snow fun and snowshoeing. Because people with IDD are usually bad in orienteering (Mälkiä 1993, 54), an easy track trains the orientation sense. The objective for winter sports is the efficient weight transfer to improve balance (Mälkiä & Rintala 2002, 312). Two different parcours, chair exercises, indoor orientation and indoor climbing form the group of indoor adventures. This group combine the security of a sports hall with partly exceptional sports. The sports are, however, hold on a basic level. In the case of climbing, the cognitive object is to gain control over the body, which is in different positions (Autio 2010, 153). At the same time muscle strength and joint mobility increase.

8.4 Layout of Booklet

The booklet has to be congenial and practicable at the same time. A congenial design attracts the reader. If the use of the booklet is then also uncomplicated, working with the booklet is simple. The major colour of the booklet is orange. Orange is the colour of pleasure, warmth, action and endurance. The effect of that colour on humans is stimulation, balance, and an increase in efficiency; appropriate to the thesis topic. (Panitz 2012) Other colours are used to emphasize the exercise groups: musical exercises, ball and precision games, outdoor activities and indoor adventure. The connotation of the colours is previously a representation of the exercise groups. Secondly sharp colour contrasts enlarge the conspectus of the entire booklet. According to the colour circle of Johannes Itten (1961, 30) orange/blue and green/red are contrast colours.

On the right side of the page is a differently coloured box for an increased accessibility of the exercise groups. The ground colour for musical exercises is violet, because violet is associated with fantasy, magic and extra-ordination. It is just music that is interpretable in multiple ways and the outcome depends significantly on the individual. Ball sports are marked in red. Red colour stands for happiness, energy, force and warmth. Thus this colour stresses, with happiness and warmth, the importance of a functional team spirit. Energy and force are then the results a team achieves. Outdoor activities are symbolized by the colour green. Besides nature this colour expresses youth, agility and confidence. The indoor adventure group

is hold in blue, to indicate harmony, concentration, courage and judiciousness. These are attributes of new sports like climbing or parcour. (Panitz 2012.)

The text is a central part of the booklet. The understanding of the lessons depends totally on written descriptions. Font 12 is a commonly used size for normal text (Hirsjärvi et al. 2009, 424). The right upper corner of each page is reserved for visual elements. Visual objects are only a help to outline (Schlösser 2011, 111) two to three elements of one lesson. The text style is kept short, precise with clear arrangements. Titles are highlighted and structure the lesson into parts of 2-4 exercises. The exercises are described step by step using easy understandable language. New lessons start always on a new page. The duration in minutes is an orientation for the instructor, concerning time management. Because all exercises train more skills than only balance, objects are mentioned on the top of every lesson plan. For reasons of compactness the objects are not divided into cognitive, social-emotional and other psychomotor skills. An equipment list, also located at the top of each lesson plan, simplifies the organisation of a lesson. The logo is an elephant balancing on a ball (attachment 2). Elephants are huge, clumsy animals, which are able to balance dainty on two legs (Naturlexikon). The intention is that the animal stimulates the participants to try for the same. Moreover, an animal can transmit messages easier than a person. For the colouration of the logo bright, stimulating tones were used. To conclude, a logical structure and the combination of text with visual elements supports conspectus.

The booklet is made by using Microsoft Office Word and Power Point programs. First the text is written in Word and then copied into Power Point slides. The advantage of the Word program is an unproblematic text processing, whereas convenient designing are the advantage of the Power Point program. The final version of the booklet is saved as Power Point. Since the commissioner receives an electronically version of the booklet and Power Point is a common program, it is an unproblematic act for the commissioner to make A4 copies for all instructors. Another benefit of an electronically document are relatively a cost minimisation.

8.5 Follow-up Document

The follow-up document is geared towards the disabled, to review their skill development. As a side effect, instructors get feedback indicating the success and enjoyment grade of a

certain lesson. The follow-up document is one horizontal arranged A4 sheet. On the left, upper corner is space for the participant's name. The central image of the paper is a table containing symbols of every exercise and a happy looking, neutral and sad looking elephant. Thus, participants can make a cross every time they take part in an exercise. But they also assess the exercise, which is an important feedback for the instructor. The visual symbols used in the top row of the document are ClipArts provided by the Microsoft Word program. For that reason there is no source indicated. The symbols are used to increase perception, because it is not necessary to read keywords. The symbols of the first column on the left hand side are a modification of the elephant logo. The appearance of the elephant on this document connects the follow-up document with the booklet, because a logo transfers impressions faster than written words (Beinlich 2006). The position of the elephant's trunk ranks the enjoyment factor. Consequently a cross in the table assesses a lesson. The commissioner has an electronically version of the follow-up document.

8.6 Recourses

For the development and design of the products is no budget available. Because the commissioner receives the booklet and the follow-up document electronically, a distribution of the documents towards the instructors is simple. A minimum of cost accrue, when printing out follow-up documents on a black and white printer for all participants. Instructors can work with the electronic booklet. If instructors wish a paper version, this requires a black and white printer and a folder. Transparencies are needed to protect paper sheets. For a showcase issue of the booklet the author recommends a hardcover version. Spiral binding enables uncomplicated page turning and a selected page stays open. The use of normally thicker paper adds value to the document and ensures that frequent use of the booklet does not leave signs of abrasion. Furthermore there can accrue costs during the implementation phase, if groups want to buy necessary sports equipment or for that exercises that require the payment of an entrance fee.

9 EVALUATION OF PRODUCT

During winter 2011/2012 the author of the thesis introduced herself in the theoretical material about IDDs and the effect of physical exercises. This was followed by investigations on potential effects of balance exercises on the life of IDDs. Then the lesson plans were prepared. At the practical training place in Kemi there was the prospect to test the programs twice a week. Each lesson was discussed in retrospect with the supervisor of the practical training place, Maarit Hast.

9.1 Appropriate Balance Improving Exercises

The author's search for guides containing physical activity instructions for IDDs was unsuccessful. But there was the impression that exercises being suitable for children and elderly are also suitable for IDDs. Exercises and games for children are motivating, include variations and sometimes participants are part of a story and play their own role. Moreover the biological age of IDDs differs from the behavioural age, so that the behaviour of a person with IDD potentially remains childish (World Health Organization 2010). On the other hand IDDs deal with the central weakness in keeping balance, which again, justifies the use of exercises suitable for elderly. Because the information transport of senses via nerves slows down and muscle strength decreases with age, the operation ability of elderly changes (Mälkiä & Rintala 2002, 164-165). Therefore physical activity for seniors targets on improvements in balance and strength. After evaluation of the arguments the author decided to make entertaining lessons, like for children.

9.2 Different Versions of Exercises

At the beginning of the thesis process there was the idea to offer two versions for one movement. Then, the instructor chooses the appropriate version for a participant. With increasing experience in instructing groups with special needs, it became successively clear that these groups are more heterogenic than groups with normal bodied participants. Individual needs differ from each other, which makes it complicated to provide a guide with two ver-

sions for one movement. Mälkiä & Rintala (2002, 255) came to the same results and suggest that the various adaptations are needed for a group of IDDs. The experience showed also that not all participants follow the instructed exercises, but they repeat asking for a certain activity. One person of the Peiponpesä group was, for example, used to sit on a Fitnessball, no matter what other group members were doing. Because this person liked ball handling exercises the instructor supported this wish and provided the possibility of own activities. The supervisors, who will instruct groups in physical activity, have the advantage to know which preferences one participant has.

9.3 Forms of Motivation

When the author worked with IDDs, there were observations in regard of motivation. On the one hand there is the instructor with an own character and on the other hand there is the topic of a lesson. The success of a lesson depends to a high grade on the personality of the instructor, which is confirmed by Mälkiä & Rintala (2002, 210). Interest in the participants, individual support of one participant's strength and the offer of assistance are central interpersonal factors offering motivation. Another issue is variation. When different sports are provided, there is a chance for everyone to find the own form of physical activity. On the base of own interest the motivation of developing own skills is increased. Up to the experience of the author the use of music awakes interest and guaranties participation. Also Mälkiä & Rintala (2002, 34) mention the positive influence of music as a medium during exercising. Hast (2012) explained in an interview that especially the Finnish popular music is accepted among IDDs.

9.4 Development of Booklet and Follow-up Document

The booklet, as the main product, is the result of a research process. After the topic idea was restricted to the motor skill balance, the author searched for theoretic research material. Because no other examples were found, test lessons were an important part of the own research. The tests gave an impression of how practicable the lessons are. In the next step the focus transferred from the content of the booklet to the design. Under the premise to get easily A4 printouts of the electronic version, two standard Microsoft programs were used.

The booklet is made with Word and Power Point, whereas the following up document is completed with Word.

9.5 Results of Testing

Despite the use of basic, popular movements, testing played an important role during the product development phase. The author got an impression of the all-around condition of IDDs. In addition there was an adjustment of the own instruction style. Naturally, testing gave feedback on the application of the exercises.

The main purpose of testing was to get an idea of the exercise's applicability on IDDs. In addition the tester's eye mark was on the satisfaction of the participants. Because of the high importance of physical activity for people with IDD (Mälkiä 1993, 11-13), enjoyment is a major motivation factor. To see if the instructions of the booklet work, the author sent a preliminary version of the booklet to the instructor of the Majakka group in Kajaani. Results do not exist, because the author never received feedback.

Not all parts of the developed products were tested, though testing was an important part of the thesis process. Reasons therefore are miscellaneous. The application of the follow-up document has not been tested, because it was incomplete during the testing phase in spring 2012. Instead there was a discussion with the representatives of the commissioner, who knew from experience that filling in tables is practicable also for IDDs. For seasonal reasons, it was impossible to test the winter programs. Because in Kemi there is no public climbing wall, indoor climbing was not practiced with Peiponpesä. Playing badminton and aerobic were topic of the first two lessons the author has spent with Peiponpesä. Instructor was in these particular cases Maarit Hast and the author took part as assistance. The lessons badminton and boccia have been tested, even there are no lesson plans existing. Boccia was well known for all participants of Peiponpesä, that there was no need for lesson planning. The provided information by instructing the majority of exercises, has been transferred while planning the winter exercises and climbing.

10 DISCUSSION

The discussion is the place to dispute about this particular thesis. The first part of the discussion deals with the product development process. It is followed by a look on ethicality and reliability. At the end of the discussion the author evaluates her own professional development, which is compared with the objectives that Kajaani School of Applied Sciences set.

10.1 Product Development Process

The thesis process started with the initial idea to make outdoor events possible for IDDs. Implementation of outdoor activities for groups with special needs requires a proper organization. In contrast to indoor activities all equipment has to be carried out and the terrain is changing. In addition weather conditions cannot be predicted. Cold and rainy days in the field are a challenge for the instructor, who needs to have an alternative programme for those situations. In addition outdoor activities are already specific and not favourite of everyone. To reach a wide range of possible participants the actual booklet contains exercises of different sports fields. The mixture of ordinary and unconventional sports brings diversification into the exercise pool. With the help of this product, inhabitants of supervised shared flats have a goal orientated physical activity program. Supervisors do not need great work effort to plan a lesson, because the booklet contains 16 readymade programmes.

The main result of this product development will be an improvement in balance for the subjects and is, therefore, an approach on the way to an enhanced integration and more independent life style. Right now physical activity, for people with intellectual and developmental diseases, is in the majority of supervised flat sharing communities restricted to walking trips twice a day (Korkeala, interview 10.11.2011). With the aim of the Joint Authority services for the disabled to improve and develop services for disabled people, this thesis topic matches these goals. This thesis helps to bring variety into the physical activity program. One side effect can be the discovery of sports as a new hobby by some participants. To stay in the time limit, the content of the exercises focuses on improving balance. The author of the thesis gains knowledge in working with people having special needs; especially in instructing intellectual and developmental disabled. So far the focus of the author was on or-

ganisational details, but the direct contact to disabled is missing. Another objective is to gain experience in developing a product. Employees and students of Kajaani School of Applied Science profit from the awareness they get and from networking with institutions for people with special needs.

To ensure a high quality of the booklet, testing of the planned exercise pool played an important role. The most significant changes that have been done after testing are connected to the clearness of instructions and to the visual perception of demonstrations, particularly in the swimming pool. Verbal instructions have to be short, but precise. This fact is affirmed by Mälkiä & Rintala (2002, 255), who present in their book that instructions have to be concrete and perseverance. At the beginning it was a learning process for the tester, because Finnish is not the mother tongue and misunderstandings occurred. It is also necessary to have demonstrations, which turned out to be challenging in the swimming pool. For safety reasons two to three participants required one assistant, because only a few participants were able to swim without help. Therefore the tester stayed in the water, but since the lower extremities were covered with water, leg movements were invisible. Consequently the comprehensibility of the demonstration was influenced negatively. The solution for that problem was the use of the leisure pool that offers an elevated border around the pool. In that pool it was a short way for the instructor to climb up the border for the purpose of demonstrations.

Risks are good to think about before a project comes into implementation phase. In that way risks can be minimized, but not excluded. At the beginning of the project precariousness causes risks. Then there are risks that depend on a certain type like cooperation partners, timetable or environmental factors. Cooperation partners can lose their interest in the project and it can be necessary to search for a new team. Because not all risks can be excluded there is the possibility that the original timetable expands. As a result problems with quality can appear. Environmental factors play a role outdoors. There is weather or insect influence, surfaces are uneven and it might be more difficult to keep an overview. (Rissanen 2002, 163-166.) The risks of this specific thesis stayed on a minimum level. There was only one partner, who stopped cooperating during the thesis process, but it was possible to substitute this person. Another risk factor occurred in summer 2012, making it necessary to adjust the original time schedule. Small changes of the time table were enough, due to faster progressing at the beginning of the summer and due to long working days of the author.

The best possible form for a guide is a DVD. In that way future instructors see exactly how to conduct a certain movement. Thus, the risk of misinterpretation is minimized. On the other hand, a video production requires the members of the pilot group to perform all exercises well; otherwise there is no learning effect for the spectators. Because the author did not know anything about the motor abilities of the pilot group, the idea of a video production was dropped. Another possibility to get a video done by avoiding the problem with the unknown group is cooperation with an able-bodied friend. But this operation reduces the belief in the content of the booklet, because physical activity is easier to conduct for normal people than for people with special needs. Another reason against the video production is the author's lack of experience in video making.

If those groups that start using the booklet next year will acceptance the balance improving content of the booklet, more specific lessons can be planned in the future. Analysing the follow-up document provides information of the popularity of a certain lesson. In that way groups are able to concentrate only on popular sports, which enable a more specific training. With the help of an exhaustive interview with the supervisors, a sports instructor can process details of individual preferences, weakness and strength. The sports instructor, who plans the lessons in the future, respects individual differences. A more individual program then has a positive influence on the motivation of the participants.

10.2 Ethicality and Reliability

Reliability and ethical issues bring depth into the research and that is the reason why ethical issues have to be considered correctly. These ethical issues are avoiding plagiarism, research results' correctness, the critical use of research results, clearness and completeness of the research report, and fair treatment of other researchers (Hirsjärvi, Remes & Sajavaara 2009, 26-27).

Plagiarism is the use of another person's original work without mentioning the original author in any way. To avoid plagiarism the author of this thesis has indicated these text parts, which are taken from sources by quotations or appropriate citations. The results the author of this thesis came to are unmodified. Consequently the reliability of the results is guaranteed. The critical use of research results is primarily a problem of qualitative and quantitative thesis. In the case of this concrete thesis the results of the program tests depend to a major

part on the interpersonal cooperation between instructor and the group. It is possible that a certain element of instruction works out for one instructor, but the personality of a second instructor limits the success of the same element. The author also complied with clearness and completeness of the research report. The attempt to describe the thesis process in its true details has been a major goal during authoring. During all thesis development stages the author treated the data of other researchers respectfully. Without the use of other authors' findings this thesis would lack necessary background information. When resuming the above mentioned facts, it can be summarized that the reliability of that thesis report and the developed product has to be classified as high.

Another ethic subject is the inviolability of man dignity (Hirsjärvi et al. 2009, 25) like it is established by the basic law. In addition, there is the assurance for everyone to get possibilities and to be treated respectfully in social and health service proving institutions. Humans want to spend a pleasant life, have a will of their own and aspire for self-determination. Each human has to be considered as a universe with physical, mental and social needs. When helping other people the individual's abilities have to be in the centre of focus. (Malm et al. 2006, 412.)

In the case of this thesis the contact to the IDDs was limited to the testing period. The members of Peiponpesä and Mäntykeskus, who participated in the programs, knew about my status as student completing a practical training. All participants have also been informed that the instructions were focused on testing the appliance of the programs. It is impossible to know how each individual processed the information about the author's status. In fact testing happened at exact the same places and the same time schedule than it is agreed between the adapted physical activity instructor of the city of Kemi and Peiponpesä / Mäntykeskus. The participation in the programs was voluntary; regardless if the place of instruction was Tervahalli, swimming hall or in the facility of Peiponpesä. It was also possible for the participants to follow their own program, because there have been always enough supervisors and alternatives that safety was guaranteed.

Besides the ethic side of a thesis, reader also concern about the reliability of a research. According to Hirsjärvi et al. (2009, 231) it is a sign of reliability, if different research teams get same results. This is a practical measure when assessing qualitative or quantitative thesis. Because this concrete thesis is a product development, other measures are needed. More efficient measures, to assess a product are the transferability of the content, importance, re-

sponsibility, and coherence of the process (Kajaanin ammattikorkeakoulu 2009). Under these circumstances it can be claimed that this thesis has a high reliability. The arguments therefore are the following:

By purpose the transferability of the balance exercises is high, because in Kainuu are several groups that can implement the balance programs. Participants, instructors and place of implementation vary from group to group. These circumstances were in mind when the balance improving exercises were created. The exercise descriptions never contain exact measures, which leaves a margin for adaption. Furthermore, it was an intention of the author to reduce the use of equipment to common ones like balls or sticks, which are easily available and cheap in price. The importance of the balance improving exercises is to rate highly, because physical activity improves humans' well-being (Mälkiä 1993, 54-56). Balance improvement, in concrete, increases self-confidence in moving. If motions are as safe and fluent as for normal-bodied people, this is one step of integration. Life is safer when reactions to fast actions are balanced, so that falls can be avoided. With a higher grade of safety, also quality of life increases. The last measures indicating a high reliability are coherence and responsibility. The coherence of the process goes hand in hand with the responsibility of the author to provide suitable balance programs. From the beginning on, it was the intention of the author to create constructive products. The first step was to study theoretical material that is connected to the thesis topic. In the next step the program of the booklet was created. At that same time the author collected first experience in training the balance sense of elderly people at a rehabilitation centre in Tornio. The testing phase is rated to be the most important stage of the thesis process, regarding only the appliance of the content. To bring the content into written form was the final stage. This stage's significance is an incisive description of the exercises for the future instructors.

Reliability of a thesis is impaired when the author trusts only own knowledge and experience (Hirsjärvi et al. 2009, 19). Own knowledge can base on every day knowledge that is not protected by scientific knowledge. In the case of an own opinion, there is the risk of the individual attitude influencing the result. Individuals tend to accept only the own point of view. It is sometimes difficult to exclude own experiences and opinions and to set exclusively on credible texts. In addition there is the danger to select only certain texts as sources that reflect the own opinion. For the writing process the author selected theoretical material from authors and organizations that can be relayed to. The majority of Internet sources have been updated recently and the majority of books are not older than 10 years. Every time a source

was used, it was the author's aim to retell the intention of the original author. Hirsjärvi et al. (2009, 26 and 113) assess this to be signs for conscientiousness during the thesis process.

10.3 Professional Development

The Sports and Leisure Degree Programme considers sport as a phenomenon of human way of life. Students get a wide understanding of different motion forms, in health promoting physical activity, in pedagogy and in entrepreneurship. Special competences are acquired in the field of coaching. Through the thesis process students have the chance to develop their knowledge and skills in a self-chosen field of sports. Thesis demands critical thinking, ethic contemplation and academic way of working. Furthermore students are in contact with working life to get practical experience. (Kajaanin Ammattikorkeakoulu 2009, 72/99.)

During the thesis process the author was able to deepen the knowledge about health enhancing physical activity. This field of the sport studies was interesting from the beginning on of the studies. The demographic structure of South-Lapland, the living place of the author, shows an increasing in the ration of elderly to young (Norden Organisation 2012). Consequently physical activity for belongs of elderly is an important issue in North-Finland. But this subject only initiated the interest in health enhancement. When looking at sports offers of different communities, it is obviously that the programme for normal-bodied people is wide and only a small percentage of sports offers are made for special groups. The thesis topic in combination with the advanced practical training provided the possibility to deepen knowledge about adapted physical education. More important than the gain of theoretical knowledge, was the experience in instructing special groups. The cooperation with the members of special groups only enhanced the author's inspiration to continue the chosen career. Obviously the author was able to reflect this interest to others, because she recently works for a physiotherapeutic company as sports instructor and masseur. The experience of the thesis provides a good base at work. There is for example the ethic side for professionals in social and health occupations. Respect and the support of an individual's strength are only two ethic points that are obviously.

For the booklet the author applied the knowledge about basic exercises to the skills and abilities of IDDs. The author understands the effect of certain exercises on the physical development of a participant. The author was able to demonstrate that planning and instructing

of a special target group succeeds. In addition the information about developing a product expanded. It is possible to face a similar product development project at work. This thesis is then a good source to lean on. This fact saves time in the future and leads to faster success at the workplace. The thesis process was again a possibility to demonstrate the ability to work independently, responsibly and organized. It was no problem to stay in the advanced planned timetable.

It can be concluded that the author's competences in physical activity, pedagogic and health enhancing physical activity increased. Connections to organisations and professionals in the field of health enhancing physical activity in the region of South-Lapland expanded, which is a great chance for the author. In addition the existing balance improving exercise pool is ready to use for future instructions.

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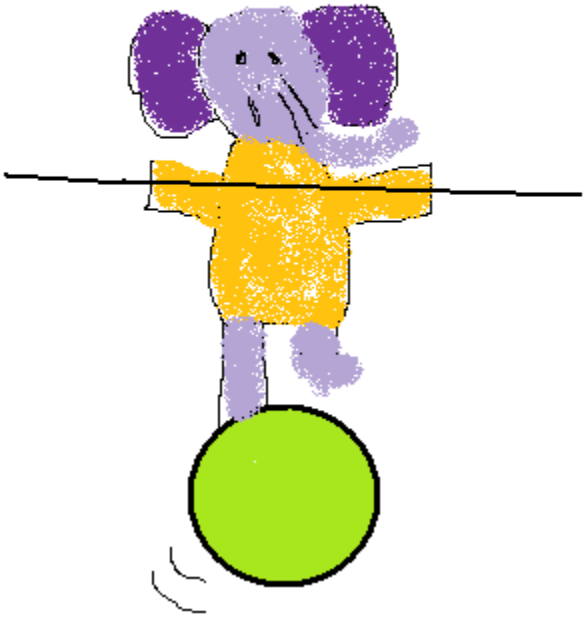
LIST OF APPENDICES

BALANCE EXERCISES

RELEVANCE OF SPORTS FOR IDDS

- MUSIC EXERCISES
  - Group dance
  - Aerobic
  - Water exercises
  - Chair Exercises
- BALL AND PRECITION SPORTS
  - Soccer
  - Basketball
  - Badminton
  - Boccia
- OUTDOOR ACTIVITES
  - Orientation
  - Snow fun
  - Snowshoe Walking
- INDOOR ADVENTURE
  - Parcour 1
  - Parcour 2
  - Balancing Standing
  - Indoor Orientation
  - Indoor Climbing
- SOURCES

LOGO



FOLLOWING UP

Nimi: _____

	Ryhmä-tanssi	Aerobic	Jalka-pallo	Kori-pallo	Sulka-pallo	Boccia	Vesi-jumppa	Rata 1	Rata 2	Suun-nistus	Lumi-rieha	Lumi-kenkäily	Tuoli-jumppa	Tasa-paino-jumppa	Sisä-suunnis tus	Seinä-kiipeily
																
																
																

LESSON PLANS

- Chair exercises
- Group dance
- Water exercises
- Soccer
- Water exercises
- Orienteering
- Water exercises
- Basketball
- Outdoor orienteering

LESSON PLAN FOR CHAIR EXERCISE

TIME: 24.4.2012	**LOCATION:** Peiponpesä	**CLIENTS:** Mentally disabled	**INSTRUCTOR:** Karola

SUBJECT AND OBJECTIVE OF THE LESSON:
PM: Balance, improving flexibility and strengthening main muscle groups
C: Learn to concentrate
S-E: Exercising in a group

OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEEDBACK:**
1. Preparation	1. Preparation Finding appropriate chair and if needed pillow		1 min	1. Has everybody own suitable chair? Is everything safe?
2. Warm up PM: Increase temperature of muscles, heart rate and metabolism	2. Warm up Marching and long movements with arms in marching rhythm	2. Warm up Instructor shows example and group follows	2 min	2. Are participants warmed up?
3. Exercising and stretching PM: Training and stretching one muscle group after another C: Concentrate	3. Exercising and stretching Steps to the left side, back and to the right side, back. Moving arms from side to side	3. Exercising and stretching Music. Instructor shows example and group follows. The participants sit the whole time on the chair. For the jumps partici-	20 min	3. Can most of the participants follow the exercises? Is everything safe?

S-E: Being together	Step over stones Toes, heels Straight leg and pumping leg up and down Knee up and elbow of other side down A step, V step Both knees up Steps to the side, front and back Ankle movements Legs over cross Circling shoulders Wrist open/close Finger exercises Stretching neck	pants can hold the chair with their hands on the side for more stability.		

	Boxing Jumps to the side Knee up and kick to the front Marching Clapping 4 times on knee, then 4 times in hands			

LESSON PLAN FOR GROUP DANCE

TIME: 27.4.2012	**LOCATION:** Tervahalli	**CLIENTS:** Mentally disabled	**INSTRUCTOR:** Karola	
SUBJECT AND OBJECTIVE OF THE LESSON: PM: Balance, endurance enhancing C: Learn to keep rhythm S-E: Together as a whole				
OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEED-BACK:**
PM: Move to rhythm C: Learn steps S-E: Be part of group	Group form a circle and partici-pants take hands of neighbours. Steps to the right Change direction Marching Step to centre of circle and back Right knee up and clap hands Left knee up and clap hands Take off hands of your friends Walk to the right Steps to the left Cross steps to the right Cross steps to the left Marching Two steps ahead and clap hands on every step Two steps back and clap hands Cross right leg in front of left one and swing it back Cross left leg in front of right one	CD player	25 min	Can most of the participants fol-low the exercises? Is everything safe?

	and swing it back Turn around yourself Walk to centre of circle and clap hands Walk back and clap hands Take hands of your friends and walk to circle centre Clap your hands in the middle of circle Cross your hands in front of your body, take hands of friends, walk back With crossed hands again to mid-dle and back			

LESSON PLAN FOR BALANCE EXERCISES

TIME: 2.5.2012	**LOCATION:** Peiponpesä	**CLIENTS:** Intellec. & develop. disor	**INSTRUCTOR:** Karola

SUBJECT AND OBJECTIVE OF THE LESSON:
PM: Improving balance
C: Easy exercises that can be done by some individuals at home
S-E: Exercising in a group

OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEED-BACK:**
1. Warm up PM: Increase temperature of muscles, heart rate and metabolism	1. Warm up Dancing Jumppalaulu by Fröbelin Palikat.	1. Warm up Instructor sings and shows example Chairs	5 min	1. Are participants warmed up? Are participants able to follow?
2. Exercising PM: Improving balance; also work out for lower limbs S-E: Meeting other participants	2. Exercising with chair Heels up/toes up Squats Knees up/down alternating Bring alternating legs back, hold in the air for a while and bring back	2. Exercising Chairs needed. Instructor explains and shows example and group follows. Participants stand behind chair and can help their balance by holding on the backrest	25 min	2. Can participants follow the exercises? Is everything safe?

	Legs alternating to the sides, hold for 3 seconds and bring back Jumping jacks Wide leg position and stand on toes for 3 seconds, relax and on toes again Legs next to each other and try to move upper body to back, front and both sides			
3. Ball exercises PM: Balance and ball handling	3. Ball exercises Transport a ball with a racket Bring ball around your legs (like an eight) Bring ball around your upper body Bring ball over your head and change to other hand	3. Ball exercises Instructor shown examples of every stretching movement. Rackets and balls needed	10 min	3. Are participants able to perform? Does someone need help?
4. Finish PM: hold balance	4. Finish Form a long worm with all partici-		10 min	

when others pull and push you	pants and head tries to catch tail			

LESSON PLAN FOR WATER EXERCISES

TIME: 3.5.2012	**LOCATION:** Swimming pool	**CLIENTS:** Intellec & develop. disab.	**INSTRUCTOR:** Karola

SUBJECT AND OBJECTIVE OF THE LESSON:
PM: Improving balance, endurance
C: Learn how water effects on your body
S-E: Exercising in a group

OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEED-BACK:**
1. Warm up PM: Increase temperature of muscles, heart rate and metabolism C: Influence of water	1. Warm up Adapted swimming	1. Warm up Instructor helps swimmers. Noodle for breast swimming	15 min	1. Are participants warmed up? Safety
2. Exercising PM: Training big muscle groups and joints S-E: Meeting other participants	2. Exercising Bring straight leg close to water surface Knees up/clapping hands Toes up/heels up Lunches to the front	2. Exercising Music. Instructor explains and shows example and group follows.	30 min	2. Can participants follow the exercises? Is everything safe?

	Steps to the side Step to the side and hold leg in the air for 3 seconds Noodle on your back and ride bike Jumping jacks, noodle in front of body Noodle draws half circle into water in front of body Mambo steps (to front, back to middle, back and back to middle) Stand in water and circle upper body (weight transfer)	Take noodle		
3. Swimming	3. Swimming like before	3. Swimming Noodles for breast swimming	10 min	3. Safety
4. Tiger ball PM: ball handling	**4.** Tiger ball One participant in the middle of	4. Tiger ball	5 min	4. Does everyone get the ball?

S-E: own turn	circle. This person tries to catch the ball	Ball needed		

LESSON PLAN FOR SOCCER EXERCISES

TIME: 4.5.2012	**LOCATION:** Tervahalli	**CLIENTS:** Intell. & develop. disable	**INSTRUCTOR:** Karola

SUBJECT AND OBJECTIVE OF THE LESSON:
PM: Improving balance, ball handling
C: Basic soccer exercises
S-E: Waiting own turn, listen to instructor

OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEED-BACK:**
1. Warm up PM: Increase temperature of muscles, heart rate and metabolism	1. Warm up Stick exercises	1. Warm up Instructor shows example and group follows Sticks	10 min	1. Are participants warmed up?
2. Exercising	2. Exercising Kick ball to pair with right leg Kick ball to pair with left leg Kicking high balls Transport ball to your partner, around and back Transport ball around objects	2. Exercising Go in pairs Balls for every pair Goals	30 min	2. Can participants follow the exercises? Is everything safe?

3. Game PM: Brings muscle to normal length and removes waste products	Shooting goals 3. Game Group is divided into 2 groups. Groups have own goal. Group members in the back transport ball to closest partner and last one makes goal. No game between the two groups 4. Fröbelin Palikat YXI	3. Game Instructor shown examples of every stretching movement 4. Fröbelin Palikat Group stands in circle and forms the letters. Everyone can shout word that start with the letters	10 min 5 min	3. Are the rules clear?

LESSON PLAN FOR WATER EXERCISES

TIME: 16.5.2012	**LOCATION:** Pool	**CLIENTS:** Peiponpesä	**INSTRUCTOR:** Karola

SUBJECT AND OBJECTIVE OF THE LESSON:
PM: Improving balance, basics of swimming/diving
C: Listen to instructions
S-E: Exercising in a group

OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEED-BACK:**
1. Warm up PM: Increase temperature of muscles, heart rate and metabolism	1. Warm up Adapted swimming	1. Warm up Instructor shows example and group follows	20 min	1. Are participants warmed up?
2. Exercising PM: Training balance sense S-E: Meeting other participants	2. Exercising Wide leg position and altering both legs up Legs up to the side Toes/heels Jumping jack	2. Exercising Music. Instructor explains and shows example and group follows.	30 min	2. Can participants follow the exercises? Is everything safe?

	Lunges to the front Step to the side Riding bike (front, back) Jumps to the side with noodle on the back Jumps to front and back with support of noodle Skiing Mambo Move noodle in front of body from side to side 3. Ball game One person in the middle of circle tries to catch the ball others are throwing	Noodles Ball needed	5 min	

LESSON PLAN FOR ORIENTEERING

TIME: 18.5.2012	**LOCATION:** Tervahalli	**CLIENTS:** Intell. & develop. disable	**INSTRUCTOR:** Karola

SUBJECT AND OBJECTIVE OF THE LESSON:
PM: Balance, orienteering in nature
C: Learn balance improving exercises
S-E: Group work

OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEED-BACK:**
1. Warm up PM: Increase temperature of muscles, heart rate and metabolism	1. Warm up In pairs: sit on mat with partner, hold hands, wide legs. Move back and forward, also to side (sitting in a boat, storm is coming) In pairs: one stands like a dog, other puts ball onto back and partner tries to straighten leg without dropping the ball.	1. Warm up Instructor shows example and group follows Mats, small balls	10 min	1. Are participants warmed up?
2. Orienteering	2. Orienteering 7 stations: go around obstacles and through ball into basket	2. Orienteering Whole group together Signs 3 ropes 3 swiss balls 3 balls	30 min	2. Can participants follow the exercises? Is everything safe? Do they find all signs?

	Transport swiss ball from side to side while sitting on a mat Lay over swiss ball and straight-en one arm and opposite leg long steps along line walk over rope, that toes touch heels walk over soft objects find surprise	obstacles surprise pillows		
3. Game PM: quickness S-E: wait own turn	3. Game Group is divided into 2 teams. One group trough hats whereas other group sets hats up again	3. Game Instructor shown ex-amples	20 min	

LESSON PLAN FOR WATER EXERCISES

TIME: 25.5.2012	**LOCATION:** Pool	**CLIENTS:** Peiponpesä	**INSTRUCTOR:** Karola

SUBJECT AND OBJECTIVE OF THE LESSON:
PM: Balance, improving endurance, strength
C: Water as a safe environment for elderly
S-E: Exercising in a group

OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEED-BACK:**
1. Warm up PM: Increase temperature of muscles, heart rate and metabolism	1. Warm up Swimming	1. Warm up Instructor shows example and group follows	20 min	1. Are participants warmed up?
2. Exercising PM: Training big muscle groups and joints S-E: Meeting other participants	2. Exercising Porridge Skiing Jumps from side to side Jumping jacks Riding bike	2. Exercising Instructor explains and shows example and group follows. Noodles	15 min	2. Can participants follow the exercises? Is everything safe?

	Cutting grass 3. Ball game Group stands in circle with one participant in the middle of circle. Person in the middle tries to catch ball which other throw from side to side 4. Diving 5. Relax in water / whirlpool	Ball	10 min 10 min 5 min	

LESSON PLAN FOR BASKETBALL

TIME: 29.5.2012	**LOCATION:** Tervahalli	**CLIENTS:** Mentally disabled	**INSTRUCTOR:** Karola

SUBJECT AND OBJECTIVE OF THE LESSON:
PM: Balance, ball handling
C: Technique
S-E: Exercising in a group

OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEED-BACK:**
1. Warm up PM: Increase temperature of muscles, heart rate and metabolism	1. Circle exercise included elements: walking on toes, small as mouse, heel walking, jumping, change of direction	1. Warm up Instructor shows example and group follows	10 min	1. Can everybody follow?
2. Exercising and stretching PM: Ball handling technique	2. Exercises In pairs: Throwing ball to partner Dribbling on place Dribble and move around partner Group in field: Everyone dribbles ball; friends try to kick others ball away	2. Exercising and stretching Music. Instructor shows example and group follows. The participants sit the	35 min	2. Is ball under control?

C: What is the tactic?	Ball into basket 3. Who is afraid of which First one which who catch-es runners. Those who are caught turn into catchers	3. Clearly districted field	15 min	3. Who is too tired to run?

LESSON PLAN FOR OUTDOOR ORIENTATION

TIME: 4.6.2012	**LOCATION:** Takajärvi / Nauska	**CLIENTS:** Mentally disabled	**INSTRUCTOR:** Karola

SUBJECT AND OBJECTIVE OF THE LESSON:
PM: Balance, endurance
C: Learn to move in nature
S-E: Groupwork

OBJECTIVES:	**CONTENT AND ACTIVITIES:**	**TEACHING STRATEGIES, GROUPING, EQUIPMENT:**	**TIME:**	**ASSESSMENT AND FEED-BACK:**
	Meeting at outdoor track Reachable with bus			
Getting familiar with forest; warm up	Walking from meeting point to lake. Participants walk in row; first in row imitates sound of forest animals-others guess		10 min	
Listening instructions Balance	At lake instructor tells rough direction of first point. After all have arrived at point the location of next point is explained. Points are flagged well. Points: standing on one le singing walk branchy track sneak 10 meters soccer goals jumping on one leg		40 min	

Blindfolded orientation	drinking hot tea Butterflies and batman Walking back to starting point		10 min 10 mi	